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Perspectives of sustainable development in countries of Southeastern Europe

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ABSTRACT

Countries of SE Europe are at very beginning of planning of their development in accordance with theoretical concept of sustainable development. Sustainable development is defined as the basic imperative and the only model of development in a longer period of time. The basic indicators of sustainable development represent a very useful and quality way for measuring and monitoring the state of sustainable development, as in every country individually so as in the regions and globally as a whole. Values of the indicators of all four subsystems in observed countries are within expectation. Also the current level of development of every country separately is taken into account and in accordance to that it is defined the current position of any country in respect to its international requests. The special value is given by the comparison of obtained results of the state in the developed EU countries, according to which there is an impression of equal degree of sustainable development in France and Germany, whereas the data regarding the state of sustainable development in Greece and at Slovenia has been improved between two analysis. Taking into account the results of the previous and current research there is a clear need for regular observation of the state of every indicator individually but also the need to observe the relationship among them as a whole. The special attention needs to be given to the intensive monitoring of indicators of economic and ecological subsystem. The research showed, among other things, to the fragile relationship of values of indicators of economic and ecological subsystem, by which any change in values of one indicator consequently leads to the changes in the final result. Both conducted researches point to the fact that the value of the mentioned indicators changes at the fastest pace.

Contents

1. Introduction

The indicators of sustainability are different from the traditional economic, social, institutional and ecological indicators [1]. This and similar analysis has shown that the indicators of

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institutional subsystems changes slower than other [2]. Traditional economic indicators of development must to be replaced with new ones indicators developed in accordance with contemporary demands of sustainable development. Setting the degree—setting the degree of sustainable development is the need of contemporary humanity who consider sustainable development the only concept of development. Traditional indicators of development cannot be entirely acceptable for setting the degree of sustainable development. Only after giving the definition of specific subsystems of sustainable development was the development of the network of the indicators possible. At the moment there are around 440 indicators of sustainable development but this number could be easily changed. Characteristics of the *efficient* indicators of sustainability are [3]:

1. *Relevance in relation to aim*: They show significant characteristics of a observed subsystem.
2. *Comprehensibility*: They are comprehendible to the public, not only to the experts of the monitored areas.
3. *Reliability*: Information shown as indicators need to be accurate.
4. *Availability of the data*: The data are adjusted to the national statistical system for processing the data and information.

In concrete conditions, the indicators reflect a certain politics. In the document dating from 1999, the European Union showed integrated strategy of environmental politics and sustainable development through the document known as *European Spatial Development Perspective* (*ESPD*) and it defined three groups of *target aims*:

1. Economic competence and sustainable economics.
2. Cohesion of the society and spatial equality (levelled inter-generation development).
3. Protection of natural resources and natural environment (water and biodiversity above all).

US Interagency Working Group on Sustainable Development Indicators primarily identified about as 400 acceptable indicators which were reduced to 30. Today US Working Group recommended the final number of indicators of the USA as 40. In Europe the number of indicators is different at different countries and this number varies in the range of 10 to 100. Out of the set *target aims* the following aims for concrete needs can be defined and derived [4]:

- Definition of the basic terms of sustainable development.
- Briefing about the attained stage of sustainability on the international and national level.
- Monitoring the latest achievements in the usage of economic instruments and pure technologies.
- Presence of the public and education about sustainable development.
- Defining the sources of financial means which support the concept of sustainable development.

The purpose of indicators of sustainable development is to show [5]:

- Success of the politics of environmental protection.
- Responsibility of integrating policy of sustainable development in certain production sectors.
- Integration of the ecological decision with wider decisions of development (e.g. ecological taxes and enrichment of the accounts).
- Continuous update about the changes and the state of the sustainable development.

Basic aim of this research was primarily to determine the current values of indicators of sustainable development in chosen countries of Southeastern Europe. Monitoring of the state of sustainable development indicators covered 11 countries of former Yugoslavia and region of Southeastern Europe (Greece, Albania, Former Yugoslavian Republic of Macedonia, Montenegro, Serbia, Bosnia and Herzegovina, Croatia, Hungary, Slovenia, Bulgaria, Romania), and in order to compare the current state there was given the review of the state of indicators in Germany, France, and Greece, as well as in the countries of the European Union that attained high standards in the given area. After defining the real values of indicators author provide comparison with same indicators recorded at France and Germany, as most developed countries at EU as well as with Greece. The reason for including Greece in the research was the fact that Greece has been an EU member since many years, but which is geographically and historically connected to the countries of Southeastern Europe and therefore it was possible to say whether there was a certain rule in this area.

The region of Southeastern Europe represents a geographical and historic whole, with the trend of gradual acceptance of certain countries to the European Union. In that respect, it is necessary to define and observe the state of sustainable development in all four subsystems of sustainable development in all studied countries. Based on the results of this and similar research it will be possible to visualize the current state, to define quality and quantity of connections that exist between certain indicators, to stimulate all the positive directions of development, that is, to take up all the activities which are necessary in order to aim the efforts to the direction that indicates the biggest current and potential weaknesses.

The important goal of this research, like in case of previous research conducted at 2006, was to explain the reasons for the current state and to try to point out possible rules and directions for further development that must to be adopted and included in strategies of development in the countries of Southeastern Europe. Apart from these, one of the aims also was to provide another insight into the value of each monitored subsystem of sustainable development that it has in its current phase of development in the studied countries.

Because of this, all of these countries will be challenged with the strategic planning and conceptualizing the relationship between economics, ecological, social and institutional subsystems, which is a necessary precondition for sustainable development in the broadest sense.

The research gave indicated the need to consider a new approach for determining the degree of sustainable development based on assigning a certain degree of importance to each individual indicator. The issue of determining the degree of importance of certain indicators in this particular research is just a hypothetical suggestion, however, all the facts show the need to reach a scientific agreement in that area.

2. Basic subsystems of the sustainable development

Since now, every developed schema of indicators of sustainable development is not perfect. In accordance with the subsystems of the sustainable development, inside the Agenda 21 a division of indicators into social, economic, ecological and institutional subsystem has been made. After that, according to contemporary needs and demands, all indicators has been characterized as indicators of pressure, state and response [6] has been made. The schema of conceptual frame <pressure-state-response> is based on the division of indicators into these three groups (Table 1)

1. Indicators of state, they show the conditions of the environment and development.

Table 1
Key areas suggested by the chosen countries in the programme of testing the indicators (CSD Testing Country Priorities).

Social subsystem	Ecological subsystem
Education	Quality and purity of water
Employment	Agriculture-catering
Healthcare/water supply/public utilities	Urbanism
Household	Coast area
Quality of life	Ecological state of marines
Cultural heritage	Rear and capture of fish
Distribution of income/poverty	Biodiversity/biotechnology
Crime rate	Sustainable management of forests
Population	Pollution of air
Social and ethical values	Global climate changes/raising of the sea level
Participation of women in all areas	Sustainable spending of natural resources
Access to natural resources	Sustainable tourism
Structure of the society	Changes in the usage of soil
Social equality	Restrictive capacities
Economic subsystem	Institutional subsystem
Economic dependence/debt	Integral decision-making
Energy	Construction of capacities
Models of production and spending	Science and technology
Management of waste	The public and accessibility to the information
Transport	International conventions and cooperation
Mining	The role of the government and the civil sector
Economic structure and development	Legal institutions and legislation
Trade	Preparation for possible natural disasters
Productivity	Participation of the public

Source adapted to: United Nations Department of Economic and Social Affairs, *Testing the CSD Indicators of Sustainable Development: Interim Analysis: Testing Process, Indicators and Methodology Sheets*, Technical Paper prepared by the Division for Sustainable Development, 25 January 1999, and United Nations Department of Economic and Social Affairs, *UN CSD Theme Framework and Indicators of Sustainability*, Final Draft, Price Waterhouse Coopers for Division for Sustainable Development, November 2000, 18.

Table 2
Review of the used indicators of sustainable development.

Indicator no. i_n	Indicator	Measure
1.	GDP/pc	$
2.	Debt	% GDP
3.	Road infrastructure	1000 km
4.	Inflation	%
5.	Gini coefficient	Index
6.	Growth of GDP	% GDP
7.	Investments as part of GDP	% GDP
8.	Industrial growth	%
9.	External debt	*B* ln of $
10.	Export	*B* ln of $
11.	Fertile ground	%
12.	Ploughed ground	%
13.	Irrigation	km^2
14.	Usage of fertilizers	kg/ha/year
15.	Organic agriculture/ploughed ground	%
16.	Usage of pesticides	kg/ha/year
17.	Emission of methane	1000 metric tons
18.	Emission of carbon dioxide	metric tons
19.	Forestation	km^2
20.	Usage of energy	eq. tons
21.	Life span	Years
22.	Poverty	% under the poverty limit
23.	Population number	1,000,000
24.	Literacy	%
25.	Urban population	%
26.	Unemployment	%
27.	Birth rate	% per 1000
28.	Mortality rate	Number per 1000
29.	Phone network	Users per 1000
30.	Internet network	Users per 1000
31.	Efficiency of government	Index
32.	Index of political freedom	Index
33.	Corruption	Index
34.	Investments on education	% GDP
35.	Municipalities that accepts Agenda 021	Number
36.	Investments on health care	% GDP
37.	Index of democratically	Index
38.	Women in the parliament	%

Source: www.cia.gov/cia/factbook/geos/.

2. Indicators of pressure, they point to burden of activities on the environment.
3. Indicators of response, they direct to success of ecological politics and economic development.

3. Methodology of research

In accordance to the goals of the research, certain sustainable development indicators were considered, and they were those taken to be the most acceptable ones or the all-embracing ones in practice so far (Table 2).

Indicators mentioned in Table 2 were chosen according to the previously mentioned criteria [7]. It was necessary to consider influence and real importance of each observed indicator. In comparison with previous research (2006), authors provided current values of some of indicators, especially indicators of economic and ecological subsystems, because changes at its values are highest and has strongest influence at final results [8].

The research covered quantity defining and monitoring the changes in values of indicators of sustainable development in the previous period of time in the countries of Southeastern Europe and it compared it to the more developed countries of European Union.

The research covered previously defined indicators of sustainable development, however, some importance was given to the need for a more precise definition of their relative value in comparison to the others. Every chosen indicators points the state in that precise, very narrow area of observation and therefore they are expressed in specific measures. By its definition, sustainable development represents the unity of all four basic subsystems (economic, ecological, social and institutional), it is necessary to narrow down all the values of indicators to a simple way of expressiveness in order to show overall result of state of sustainable development in countries which was subjects of research.

In order to respect variances of the observed indicators and their unequal importance in the area of observance, to each of the indicators was given certain relative value in comparison to the others. Relative value of the monitored indicators as well as their set values is given in the chart.

During the processing of the research results as a statistical importance coefficient technique has been used.

Statistic method of weight (importance) coefficients requires usage of individual value to each observed indicator. In order to provide more precise results the weight coefficients in range from 0 to 100 were used. The results obtained by using the scale with lower values showed less qualitative final outcome.

By calculating the indicators of ecological subsystem it was necessary to conduct some adjustments, in order to get clear and comparable results. Namely, the units in which ecological indicators are expressed are such that even in the final outcome they have figures with very low values in comparison to results attained in other groups of indicators. So as to solve this methodological problem and to make values of ecological indicators comparable with others and as such useful for achieving the final grade of state of sustainable development, the obtained

Table 3
Economic indicators of sustainable development in SE Europe countries.

Indicator	Sign	GDP/pc ($)	Debt (% GDP)	Road infrastructure (1000 km)	Inflation (%)	Gini coefficient (index)	Growth of GDP (% GDP)	Invest. in GDP (% GDP)	Industrial growth (%)	External debt (*B* ln of $)	Export (*B* ln of $)
Importance %		25	5	5	10	10	5	5	5	10	20
Albania	AL	5,300	66.2	18	2.4	28.2	5.5	22.4	3.1	1.55	0.65
Bosnia and Herzegovina	BiH	5,200	29	21.85	4.4	26.2	5	22.4	5.5	3.12	2.7
Bulgaria	BG	9,600	31.9	102	5	31.9	5.5	23.8	7.3	15.32	11.67
Greece	GR	22,300	106.8	116.47	3.5	35.1	3.7	24.6	−0.3	75.18	18.54
Hungary	H	16,300	58.9	159.57	3.6	24.4	4.1	23.1	7.3	66.22	61.75
Macedonia	M	7,800	33.7	8.68	0	28.2	4	18.3	6.8	2.19	2.05
Croatia	CR	12,400	49.7	28.34	3.3	29	4.3	28.6	5.1	30.62	10.3
Serbia	SRB	4,400	53.1	37.89	15.5	35	5.9	14.2	1.4	15.43	1.55
Romania	RU	8,100	20.3	11.38	9	28.8	4.1	24.3	1.9	35.68	27.72
Slovenia	SI	21,500	28.5	38.4	3.4	28.4	4	24.8	3.2	19.87	18.53
France	FR	29,600	66.2	891.29	1.7	32.7	1.2	19.6	0.2	2826	443.4
Germany	D	30,100	67.3	231.581	2	28.3	0.9	17.1	2.9	3626	1016

values of ecological indicators for every monitored country were augmented for 100,000. In this research authors involved new values of ozone destructive pollutants indicators, because they have strongest influence on environmental policy at all EU countries, which are assigned Kyoto protocol.

The final values of indicators of sustainable development were obtained by using the special mathematic formulae for every separate subsystem. Because of the specifications of used indicators (some of them affect the final outcome positively and some of them negatively) it was not possible to use a unique formulae for calculating. Therefore, the part of the research which deals with the results of the research, shows the mathematic formulae used in that case with an explanation of the symbols used:

- $i_n \rightarrow$ indicator;
- $S_n \rightarrow$ subsystem (economic, ecological, social, institutional):
  - $S_1 \rightarrow$ economic subsystem;
  - $S_2 \rightarrow$ economic subsystem;
  - $S_3 \rightarrow$ social subsystem;
  - $S_4 \rightarrow$ institutional subsystem.
- $W \rightarrow$ weight coefficient (0–100);
- $C \rightarrow$ overall indicator.

Methodology of the research puts the emphasis on the need for a yearly evaluation of the values of monitored or new indicators of sustainable development being that the smallest change in the value of one indicator can cause the change in the final result at a lower or higher level.

4. Results of the research

Precise defining, monitoring and comparison of the indicators of sustainable development in the countries of former Yugoslavia, as well as in the countries of the region of Southeastern Europe is essential in order to maintain sustainable development of region. These activities can be observed particularly significant because they need to be incorporated into further activities in order to improve overall state in whole region [8].

This research use new values of indicators, but methodological approach, which is tested at previous research in 2006 has been used. The results of research in the countries of Southeastern Europe, and their comparison with the state of indicators in Germany and France lead to significant conclusions.

5. Analysis of the research results

Basic conclusion can be drawn on the values of sustainable development in economic, ecological, social and institutional subsystem. The final result represents the achieved level of sustainable development as a whole in observed countries.

5.1. Economic indicators of sustainable development

Values of economic indicators of sustainable development recorded significant changes every year (GDP, inflation, industrial growth. . .) so in the countries that made research sample, above all show a clear unevenness in all observed countries (Table 3).

All the mentioned indicators of economic subsystem can be shown graphically by using the following formula which takes into consideration the importance (weight) coefficient of every single indicator:

$$S_1 = i_1 \cdot 25 - i_2 \cdot 5 + i_3 \cdot 5 - i_4 \cdot 10 + i_5 \cdot 10 + i_6 \cdot 5 + i_7 \cdot 5 + i_8 \cdot 5 - i_9 \cdot \frac{10}{i_{23}} + i_{10} \cdot \frac{10}{i_{23}}$$

After calculating the mutual value in the previously mentioned way, it was determined the current state of economic subsystem in some countries which can be presented by the histogram (Fig. 1).

Generally speaking, values of GDP at all countries are increase, but the highest values of this and other indicators in a monitored subsystem were recorded in France and Germany, as it was expected. Quite positive results and economic progress were recorded in Greece and Slovenia when it comes to economic markers. Values of indicators of economic development at Bulgaria and At Romania (new EU members) also increase between two researches. Both conducted researches point to the fact that the value of the economic indicators changes at the fastest pace.

The countries at a medium level of development (Hungary, Croatia, Bulgaria and Romania) generally show lower level of all indicators of sustainable development. Serbia, Macedonia and Bosnia and Herzegovina are countries with high rate of unemployment and other significant economic problems. Values of economic indicators in these countries are very law.

5.2. Ecological indicators of sustainable development

In the most developed countries (Germany, France, Greece) a higher degree of evenness and a completely reversed picture are noticed. Research includes current values of ozone destructive pollutant as most important environmental marker today. At France and Germany the lowest values of ecological indicators of sustainable development has been recorded. These situation can be explained by high level of economic development at these countries.With respect to the high level of economic development (two or three times bigger in comparison to other studied

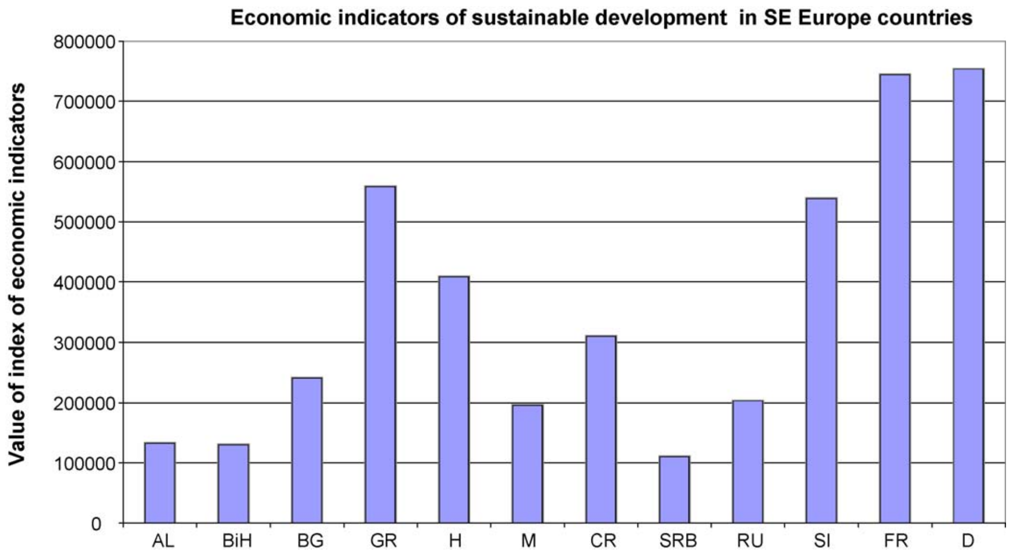


Fig. 1. Economic indicators of sustainable development in SE Europe countries.

countries) it was possible to suppose that values of ecological indicators were going to be two or three times lower. Despite significant economic progress, Germany and France do not have such a bad situation in ecological subsystem after all. These results are consequence by the efforts of the monitored countries to follow their economic development with adequate action regarding environmental protection (Table 4).

All the mentioned indicators of environmental subsystem can be shown graphically by using the following formula which takes into consideration the importance (weight) coefficient of every single indicator:

$$S_2 = i_{11} \cdot 5 + i_{12} \cdot 10 + i_{13} \cdot 5 - i_{14} \cdot 5 + i_{15} \cdot 5 - i_{16} \cdot 5 - i_{17} \cdot 20 - i_{18} \cdot 25 + i_{19} \cdot 10 - i_{20} \cdot 10$$

After calculating the mutual value in the previously mentioned way, it was determined the current state of economic subsystem in some countries which can be presented by the histogram (Fig. 2).

Positive situation is recorded in countries which shown the lower degree of economic development. Then same results was given during previous research. In these group of countries, positive trend was not recorded in the field of usage of energy, which also means problem of emission of gases that leads to the global warming indicators.

5.3. Social indicators of sustainable development

Values of social indicators are without significant change, because the value of the mentioned indicators not changes at the fastest pace. Regarding previous research difference was recorded shown between Germany and France and the remaining countries. The variation of Greece and Slovenia, as the countries where the medium values were recorded, was also evidently positive. In all the remaining countries the indicators of the social subsystem points to the similar values and drawbacks (Table 5).

All the mentioned indicators of social subsystem can be shown graphically by using the following formula which takes into consideration the importance (weight) coefficient of every single indicator:

$$S_3 = i_{21} \cdot 10 - i_{22} \cdot 18 + i_{23} \cdot 2 + i_{24} \cdot 5 - i_{25} \cdot 5 - i_{26} \cdot 20 + i_{27} \cdot 10 - i_{28} \cdot 10 + i_{29} \cdot \frac{10}{i_{23}} + i_{30} \cdot \frac{10}{i_{23}}$$

After calculating the mutual value in the previously mentioned way, it was determined the current state of economic subsystem in some countries which can be presented by the histogram (Fig. 3).

The main reason for this situation is clearly noticed when two most important indicators of social state are accepted, and they are the percentage of the unemployed population and number of

Table 4
Environmental indicators of sustainable development in SE Europe countries.

Indicator	Sign	Fertile ground (%)	Ploughed ground (%)	Irrigation (km^2)	Usage of fertilizers (kg/ha/year)	Soil under organic (%)	Usage of pesticides (kg/ha/year)	Emission of methane (1000 metric tons)	Emission of carbon dioxide (metric tons)	Forestation (km^2)	Usage of energy (eq. tons)
Importance %		5	10	5	5	5	5	20	25	10	10
Albania	AL	20.1	4.21	0.12	0.4	0.07	61	0.018	0.00011	0.028	595.43
Bosnia and Herzegovina	BiH	19.61	1.89	0.59	0.5	0.01	33	0.022	0.00027	0.1	988.22
Bulgaria	BG	29.94	1.9	0.005	0.9	0.23	49	0.009	0.00041	0.028	2696.44
Greece	GR	20.45	8.59	0.11	2.8	2.72	149	0.12	0.00066	0.086	2793.18
Hungary	H	49.58	2.06	0.025	2.4	2.19	109	0.12	0.0006	0.018	2639.38
Macedonia	M	20.01	1.79	0.022	0.8	0.02	39	0.05	0.00034	0.014	132.77
Croatia	CR	25.82	2.19	0.19	2.2	0.23	118	0.067	0.00033	0.024	1950.89
Serbia	SRB	22.1	60	0.12	0.8	0.37	91	0.1	0.00053	0.013	1723.43
Romania	RU	39.49	1.92	0.13	2.1	0.51	35	0.055	0.00039	0.059	1749.28
Slovenia	SI	8.53	1.43	1.48	6.8	4.55	416	0.12	0.00075	0.041	3487.06
France	FR	33.45	2.03	4.75	4.5	1.8	215	0.11	0.00068	0.063	4453.68
Germany	D	33.11	0.6	13.58	2.3	4.52	220	0.18	0.0024	0.07	4211.44

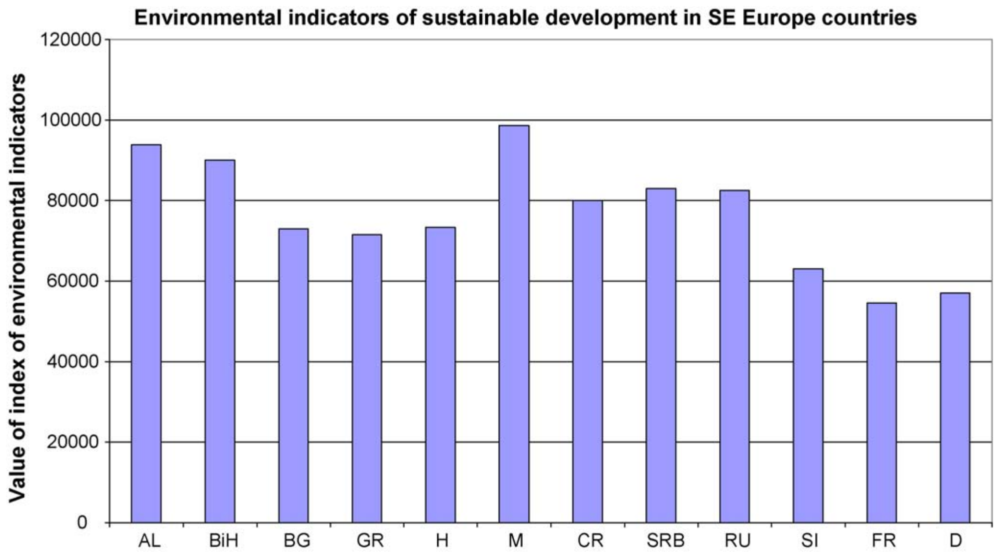


Fig. 2. Environmental indicators of sustainable development in SE Europe countries.

inhabitants that live under the limit of poverty. These two indicators are directly connected to the level of economic development, so that for the greater part it was them that determined the defined state in the social subsystem of sustainable development.

5.4. Institutional indicators of sustainable development

Institutional indicators of sustainable development in some cases can be shown with social indicators as a whole, but authors conduct their research separately. Values of this group of indicators changes very slow. Results shown high level of accordance between countries at survey (Table 6).

Indicators of institutional subsystem can be shown graphically by using the following formula which takes into consideration the importance (weight) coefficient of every single indicator:

$$S_4 = i_{31} \cdot 15 - i_{32} \cdot 10 - i_{33} \cdot 10 + i_{34} \cdot 16 + i_{35} \cdot 2 + i_{36} \cdot 22 + i_{37} \cdot 15 + i_{38} \cdot 10$$

After calculating the mutual value in the previously mentioned way, it was determined the current state of economic subsystem in some countries which can be presented by the histogram (Fig. 4).

Indicators of institutional subsystem shown the highest level of accordance, which can be explained by the fact that the institutions of a system are adaptable faster than any other. (with the exception of Germany which has the biggest number of municipalities that accepted the local Agenda for the 21st century). Like at previous research, authors are accepted the fact that the indicators of institutional subsystem of sustainable development carry potentially the lowest importance in comparison to others has to be admitted [4].

5.5. Overall indicators of sustainable development

Research which that dealt with the similar problem (monitoring, comparison and determining the degree of importance of chosen indicators of sustainable development in countries of Southeastern Europe) has been performed by author at 2006. In that way, the authors were able to conduct a comparison with the previous results. The researches that deal with comparison of the overall state of sustainable development in countries of Southeastern Europe with some of the most developed countries of European Union have not been found either, so authors used only their research results for comparison.

The results of the research point to several basic indicators of the current state, as well as to the directions of further observation. The principal result of the research can be seen in that that the indicators of economic and ecological subsystem are theoretically

Table 5
Social indicators of sustainable development in SE Europe countries.

Indicator	Sign	Life span (year)	Poverty (% under poverty limit)	Population (number/ 1,000,000)	Literacy (%)	Urban population (%)	Unemployment (%)	Birth rate (% per 1000)	Mortality rate (number/1000)	Phone network (users/1000)	Internet network (users/1000)
Importance %		10	18	2	5	5	20	10	10	10	10
Albania	AL	77.43	25	3.5	86.5	45.4	14.3	15.11	20.75	255	75
Bosnia and Herzegovina	BiH	78	25	4.5	94.6	45.7	45.5	8.77	9.82	936	806.4
Bulgaria	BG	72.3	13.4	7.3	98.6	70	11.5	9.65	19.85	2483.5	2200
Greece	GR	79.24	7.3	10.7	97.5	59	9.9	9.68	5.43	6303	3800
Hungary	H	72.66	8.6	9.98	99.4	66.3	7.2	–0.25	8.39	3356	3050
Macedonia	M	73.97	29.6	2.04	96.1	68.9	37.3	0.26	9.81	533.2	392.671
Croatia	CR	74.68	11	4.5	98.5	56.5	18	9.61	6.72	889.5	1454.1
Serbia	SRB	74	30	9.39	96.4	52.2	31.6	–4.6	19.78	685.4	1400
Romania	RU	71.63	25	22.3	99.1	53.7	5.9	–0.12	25.5	4391	4940
Slovenia	SI	76.33	7.8	2.01	99.7	51	10.1	–0.5	4.4	816.4	1090
France	FR	79.73	6.5	60.88	84.3	76.22	9.9	11.99	4.21	35700	295210
Germany	D	78.8	4.1	82.42	100	75.42	9.9	8.25	4.12	55046	506160

Table 6
Institutional indicators of sustainable development in SE Europe countries.

Indicator	Sign	Efficiency of government (index)	Index of political freedom (index)	Corruption (index)	Investments on education (% GDP)	Municipalities that accepts agenda 021 (number)	Investments on health care (%GDP)	Index of democratically (index)	Woman in the parliament (%)
Importance %		15	10	10	16	2	22	15	10
Albania	AL	−0.47	3	2.4	2.8	7	2.7	7	7.1
Bosnia and Herzegovina	BiH	−0.9	4	2.9	2.9	1	4.8	8	12.3
Bulgaria	BG	−0.06	1	4	3.6	22	4.1	9	22.1
Greece	GR	0.79	1	4.3	4	39	5.1	10	13
Hungary	H	0.78	1	5	5.5	9	6.1	10	9.1
Macedonia	M	−0.39	3	2.7	3.5	13	6	9	19.2
Croatia	CR	0.19	2	3.4	4.5	20	6.5	7	21.7
Serbia	SRB	−0.73	3	2.8	3.3	20	7.2	6	7.9
Romania	RU	−0.33	2	3	3.5	12	3.8	8	10.7
Slovenia	SI	0.82	1	6.1	6	3	6.7	9	10.8
France	FR	1.67	1	7.5	5.6	69	7.7	9	13.9
Germany	D	1.76	1	8.2	4.8	2042	8.7	10	30.5

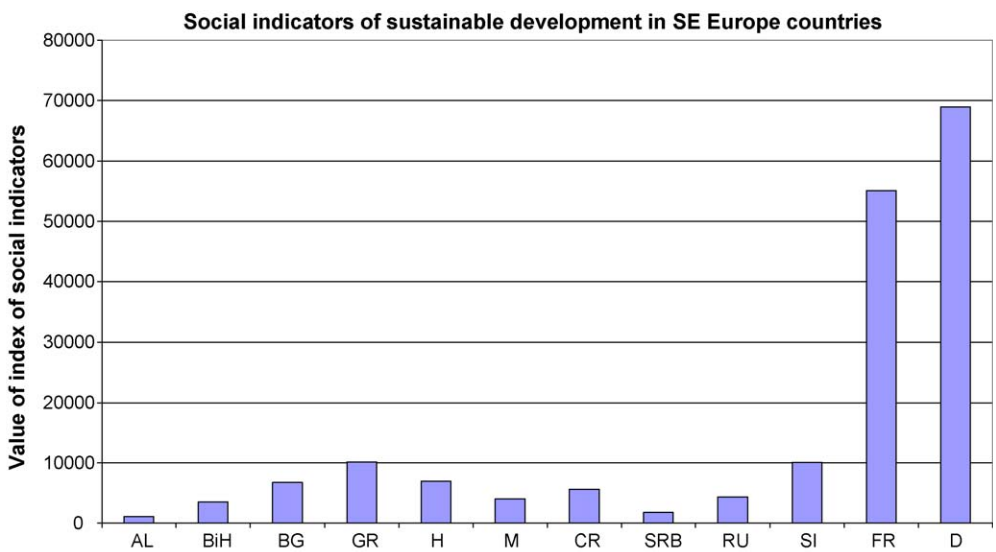


Fig. 3. Social indicators of sustainable development in SE Europe countries.

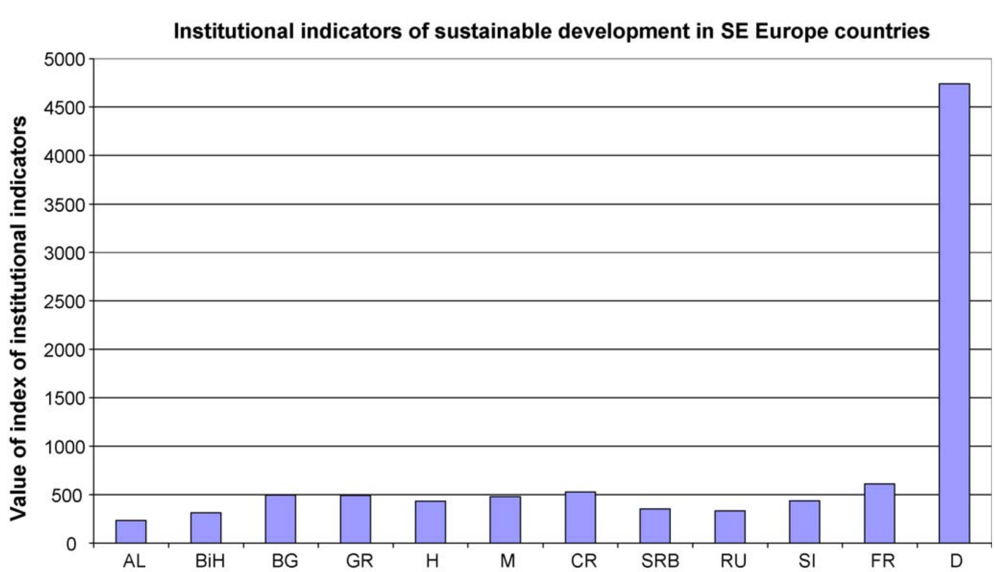


Fig. 4. Institutional indicators of sustainable development in SE Europe countries.

Table 7
Overall indicators of sustainable development in SE Europe countries.

	Economic	Ecological	Social	Institutional	Overall
Importance	25	25	25	25	100
AL	132,700	93,880	1,137	233	227,870
BiH	130,350	90,070	3,535	316	224,271
BG	240,800	72,960	6,723	497	320,980
GR	557,970	71,500	10,161	493	640,123
H	408,440	73,300	6,946	433	489,119
M	195,300	98,600	4,044	478	298,422
CR	310,320	80,040	5,645	526	396,531
SRB	100,200	83,020	1,785	351	185,356
RU	202,800	82,540	4,348	336	290,024
SI	538,000	63,100	10,104	434	611,638
FR	744,220	54,580	55,077	611	854,488
D	753,500	57,030	68,936	4,742	884,208

the most important ones when talking about the entire sustainable development of countries. Alternatively, economics and ecology are two mutually directly opposite systems. The research clearly shows the direct connection between the level of economic development and ecological endangering of the environment.

Entire situation still shows, like at previous years, the highest level of sustainable development in France and Germany (above all, thanks to the economic power of these countries). Yet, equal values have been recorded in Greece and a bit less in Hungary (mostly thanks to the positive markers of ecological indicators). Positive ecological situation was recorded at countries at lower level of development. The same results was recorded during previous research, which led to a conclusion that natural resources in these countries are preserved because of low level of exploitation. Authors wants to underline these conclusion as warning for less developed countries [9].

All gained results show the fact that the development of social and institutional indicators of development in the countries of Southeastern Europe can be expected after the development of all remaining indicators. Values of these group of indicators are not changed.

Total extent was determined by calculating the middle value of all four group of indicators for each country in survey (Table 7).

Total of results can be seen in all four observed subsystems of sustainable development, together with their final value for every country (C) which was covered by this research. Given that this position was accepted, i.e. that all four subsystems of sustainable development have an equal influence on all-inclusive state of sustainable development the authors used uniform weight (importance) coefficients for every subsystem itself by using the following formula for calculation:

$$C = S_1 + S_2 + S_3 + S_4$$

The obtained results can be shown graphically (Fig. 5).

All results leads to the conclusion that the sustainable development in chosen countries cannot proceed synchronously, equal development of all subsystems is almost impossible, so the authors consider it necessary to recognize certain degree of importance that each individual indicator has at the given moment of its development.

This research also points to the necessity of recognition of degree of importance of some indicators of sustainable development, especially in the countries that are at the very beginning of the planning of strategy of development which is based on the principle of sustainability [10].

Research points usage of new indicators of development as very important way of improvement. The definition of the current state of development in certain measure by observation of the indicators of sustainable development presents important differences in relation to the traditional economic measurement [11]. Contemporary movement in the area of development planning indicates the needs of inclusion of non-economic indicators of development,

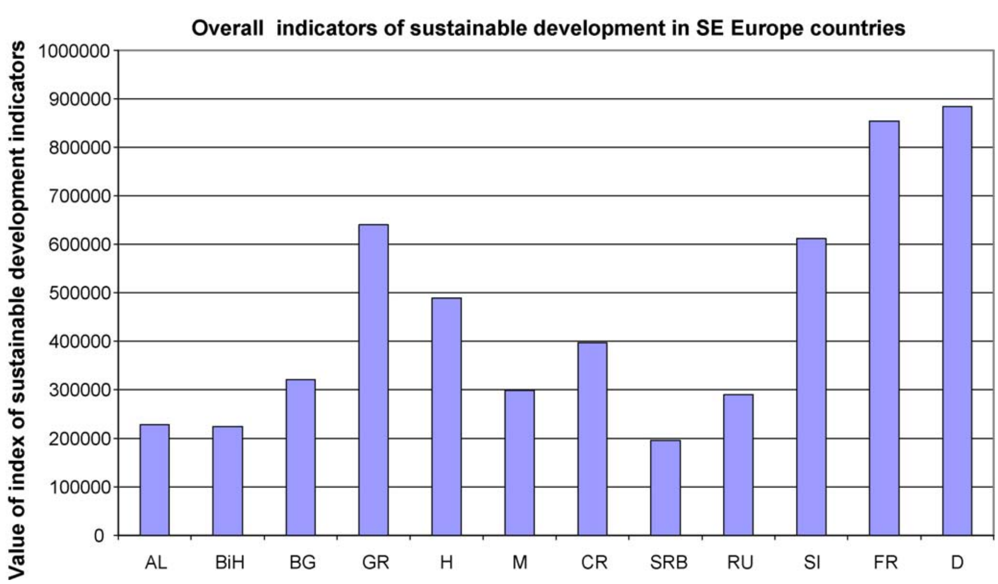


Fig. 5. Overall indicators of sustainable development in SE Europe countries.

by which it is mostly referred to the need of acceptance of the value of ecological wealth, that is, of ecological damage that certain countries cause at a global level [12].

6. Conclusion

The all-embracing problem of coordinating economic and ecological development and the global economic crisis impose the need for an extremely careful monitoring of the sustainable development as well as on the global so as on the regional level. The continuous observation of values of indicators of sustainable development in the countries of Southeastern Europe can be considered a very efficient method of monitoring their development on the whole. Namely, in this way it is possible to note potential problems in the right moment and react to them by all available measures. The research showed, among other things, to the fragile relationship of values of indicators of economic and ecological subsystem, by which any change in values of one indicator consequently leads to the changes in the final result.

By this methodology every indicator was assigned a certain weight (importance) coefficient so it is possible to notice that the factors with the highest weight coefficient in the larger part affect the state in the monitored subsystem as well as the degree of sustainable development as a whole. Taking reality into account, the influence of economic and ecological indicators stands out, and among them there are the indicators with the highest weight coefficients. Therefore it is recommendable to monitor them further and to evaluate them on a yearly level. Further improvement of suggested methodology is strongly recommended.

The indicators covered by this research are susceptible to smaller or bigger yearly changes and therefore it is necessary to monitor them and the indicators at all times. The most visible changes refer to ecological and economic indicators whereas indicators of social and institutional subsystem change rather rarely. The yearly evaluation of the state of indicators and the unique methodology of comparison is the minimum of the conditions for successful monitoring of the state and it is a perspective of sustainable development in the region.

High positive values of indicators of ecological subsystem point to potentially economically weakly developed countries of Southeastern Europe. The mentioned countries should certainly put in great and extensive efforts when it comes to economic development but without endangering their own ecological potentials, which now and in the future definitely represent their biggest value.

Taking into account the results of the previous and current research there is a clear need for regular observation of the state of every indicator individually but also the need to observe the relationship among them as a whole. The special attention needs to be given to the intensive monitoring of indicators of economic and ecological subsystem. Both conducted researches point to the fact that the value of the mentioned indicators changes at the fastest pace. Besides, their mutual relationship, given the different objectives, shows a special sensitivity and therefore every change in these fields has the strongest influence on the degree of entire sustainable development.

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